Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

NOVEMBER 1997 ◆ VOL 26 ◆ NO 2

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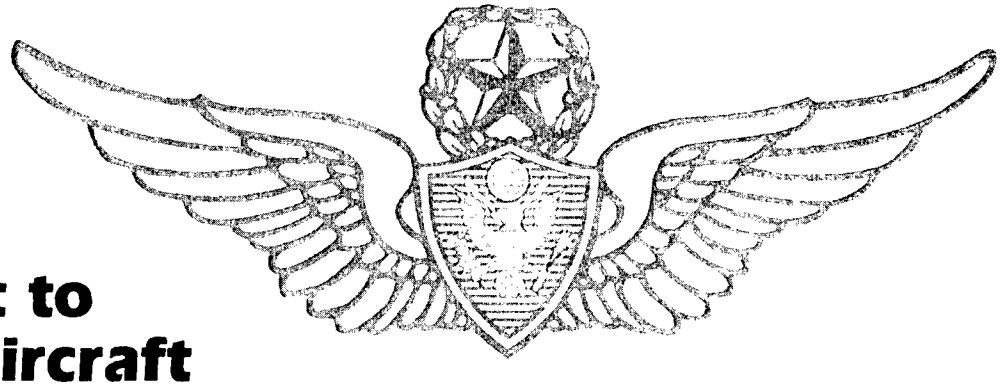
In Army aviation, the difference between a Class A accident and a forced landing can often be measured in inches and seconds. The expertise of enlisted crewmembers lengthens those inches and increases those seconds.

You don't have to be a pilot to save an aircraft



The Army Aviation Broken Wing Award was created in 1967 to recognize exceptional skill in recovering from potentially catastrophic in-flight emergencies. Since that time, more than 2,000 crewmembers have received the award. That number represents an awful lot of accidents that didn't happen and an awful lot of Army aviation crewmembers whose actions saved lives and aircraft. But not all the recipients were pilots. Twelve enlisted crewmembers are included in this elite group.

The Broken Wing Award went for the first time to a nonrated crewmember in 1982. He was SFC Marvin W. Flatt, the flight engineer on a CH-47B. When the engines failed during approach to a confined area, SFC Flatt's immediate release of the external load prevented the aircraft from going down in trees.

Two years later, CH-54B flight engineer SSG Monroe W. Hogan received the Broken Wing Award for his actions during a dual engine failure on approach to an airport.

Less than 6 months later, SGT Paul A. Leonard was the crew chief on an NVG mission in a UH-60. When the slingload lodged itself into trees after the aircraft suddenly entered a fog bank, SGT Leonard immediately jettisoned the load, enabling the flight crew to regain control of the aircraft.

In 1986, flight engineer SGT Jonathan S. Gyuran and crew chief SP4 Russell H. Crocker were recognized for teamwork that prevented having to ditch a CH-47D in the ocean. The aircraft was 50 miles from land when oil began leaking rapidly from the aft transmission. Using a case of oil stored on board, the enlisted crewmembers managed to service the transmission with 18 quarts of oil in flight at just about the same rate it was losing oil. They did so despite being constantly sprayed with hot oil as it was pumped from the transmission.

In 1988, SP4 Artur A. Piotrowski became the sixth enlisted recipient of the Broken Wing Award. He was the crew chief on a CH-47D configured with two 600-gallon internal ferry fuel tanks. The aircraft had just refueled and was cruising at 2000 feet over mountainous terrain when fire broke out in the rear of the aircraft. SP4 Piotrowski's quick firefighting action prevented the fire from reaching the internal ferry fuel tanks.

A year later, SSG John Paul McConnell was the flight engineer of a CH-47D. Over mountainous terrain, the aft cabin suddenly filled with dense, dark, acrid smoke. SSG McConnell's actions and the skill of the pilot saved the aircraft and the lives of the crew and the 25 passengers.

PFC Robert D. Brown received the award in 1991 for his assistance in landing a UH-1H that experienced total hydraulics failure at 500 feet agl with seven people on board.

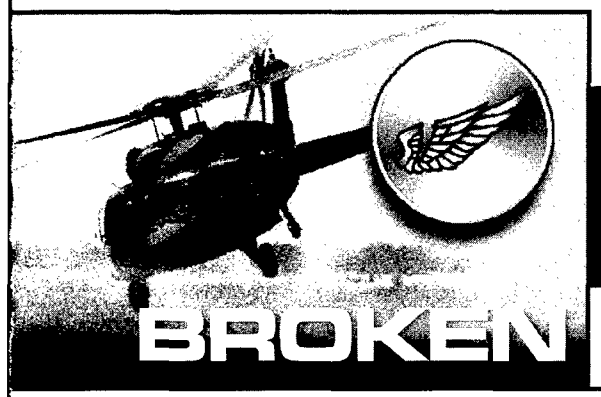
Later that same year, SGT James R. Frush received the Broken Wing Award for his actions after his AH-1F entered inadvertent IMC. The pilot's attention became fixated outside, resulting in the aircraft's descending at 2500 feet per minute in a nose-down, left-bank attitude. SGT Frush calmly talked the pilot through the procedures necessary to regain positive control of the aircraft and fly IMC until they were able to land safely at a nearby airfield.

SGT Donald R. Andreasen became the tenth enlisted recipient of the Broken Wing Award in 1994 for his assistance in landing an OH-58A whose engine failed over treacherous terrain.

Three years later, SGT James R. Seiders earned his Broken Wing Award for his actions during total hydraulics failure and cyclic hardover in a UH-1H.

SSG Paul Chambers is the most recent enlisted recipient of the Broken Wing Award. The crew chief of a UH-1H performing paradrop operations, he received the award for his actions during an in-flight emergency that put both the aircraft and the lives of several jumpers in jeopardy.

We salute these enlisted crewmembers whose life- and aircraft-saving actions have been recognized by the prestigious Army Aviation Broken Wing Award. We also salute all those crewmembers who haven't yet been tested by an in-flight emergency but who are trained and ready to use their exceptional skill to deal with whatever happens.



ARMY AVIATION BROKEN WING AWARD

BROKEN WING

The Army Aviation Broken Wing Award recognizes aircrewmembers who demonstrate a high degree of professional skill while recovering an aircraft from an inflight failure or malfunction requiring an emergency landing. Requirements for the award are in AR 672-74: Army Accident Prevention Awards.

■ *CW2 Gary D. Clark, pilot in command*
■ *CW3 Ivan S. Murdock, copilot*

1/160th Special Aviation Operations Regiment (A)
Fort Campbell, KY

CW2 Clark was the PC and CW3 Murdock was on the controls of an MH-60K conducting mountain training. The NVG mission was to establish an aircraft FARP in a remote desert location. Due to environmental conditions (pressure altitude was +5000 feet and outside air temperature was 15°(C) and a load of 4000 pounds, they were operating in a high-gross-weight condition.

At 50 feet agl and 20 KIAS on takeoff after refueling at an airport, the crew heard a loud whining noise and noted an uncommanded right input in the cyclic. CW2 Clark immediately accessed the instrument page and ascertained that tgt was well above limits on both engines. CW3 Murdock immediately lowered the collective to maintain rotor speed and maneuvered the aircraft to the nearest suitable area, which was an abandoned dirt runway. He landed safely without visual reference due to brown-out conditions.

Inspection revealed that the No. 1 engine high-speed shaft balance stud had sheared, and complete shaft failure was imminent.

■ *CW2 Timothy F. Kools*

1st Battalion, 228th Aviation Regiment
Fort Kobbe, Panama

The CH-47D was on a training flight over the Panama Canal at 700 feet agl and 100 KIAS when it began to yaw 5 degrees, progressively increasing to 20 degrees left and right. CW2 Kools, the IP, immediately turned toward final approach to an airport a mile away. As he did so, the flight controls locked in the yaw left axis and left pitch axis, which caused forward airspeed to dissipate. He applied increased counterpressure to the flight controls without results. The flight controls would not respond and felt as though there was no hydraulic pressure in the system. The flight engineer reported that hydraulic pressure and temperature were normal and no caution capsules were illuminated.

After CW2 Kools struggled with the flight controls for about 30 seconds, they broke free and felt as though partial hydraulic pressure was restored. He immediately initiated an approach to the airport, which was straight ahead, but the controls locked again in the yaw and roll axis, causing aircraft control to be nearly impossible.

Pitch and thrust were available, and he continued the approach using only these flight controls although the aircraft continued to oscillate unrestrained. The flight controls freed up again just before ground contact and the landing was accomplished.

During normal shutdown, a slight vibration was felt in the flight controls, which increased rapidly to a violent vibration and blade flapping. The crew then conducted an emergency engine shutdown. Postflight inspection revealed an extended jam indicator on the aft swiveling dual boost actuator.

■ *CW2 Stanley M. Phillips*

247th Medical Detachment, NTC Support Battalion
Fort Irwin, CA

CW2 Phillips, the PC of a UH-60A, was conducting continuation training under NVGs with low illumination. The aircraft entered total brownout conditions during approach, and the PC initiated go-around procedures. At 40 feet agl during the crew's attempt to climb out of the dust cloud, the No. 1 engine experienced a severe compressor stall. CW2 Phillips immediately initiated a power reduction in an unsuccessful attempt to alleviate the condition. Simultaneously, the low rotor audio and caution light activated, and Np and Nr on both engines began decreasing.

CW2 Phillips continued descent and observed that the area directly in front of the aircraft had large ruts and a rock embankment. With Nr decreasing to the point that the main generators had dropped off line, he realized the only way to land safely was to pull the remaining collective and attempt to clear the embankment and land in a sandy wash-out area. The aircraft ballooned over the embankment and, with little to no control authority left, CW2 Phillips managed to guide the aircraft to touchdown without damage.

The No. 1 engine compressor stall was caused by erosion of the engine compressor. Subsequent inspection found that the inlet particle separator blower shaft from the accessory gearbox had sheared.

The No. 2 engine was unable to provide for the increased demand, and it too experienced a loss of power and a compressor stall.

■ *CW5 James Noe*

Maryland Army National Guard
Baltimore, MD

CW5 Noe was the pilot of a C-12C when, during takeoff roll, a deer ran across the runway in front of the aircraft. With the aircraft near the critical point of rotation, he knew he could not take off in time to avoid it. To reduce damage to the airplane, CW5 Noe pulled back on the yoke to raise the nose of the C-12, thus avoiding the deer with the nose and the right propeller. However, the deer did collide with the left landing gear and its carcass wrapped around the landing gear as the aircraft became airborne. With great skill, he maintained control of the now-damaged aircraft, flying left-side-low because of the weight of the deer on the left landing gear. When the deer carcass fell off, CW5 Noe gently lowered the left side of the aircraft onto the collapsed landing gear. This action prevented the aircraft from cartwheeling and eliminated any sheet-metal damage to the airframe. He skillfully steered the aircraft and kept it on the runway. The aircraft traveled for 2500 feet from the point of impact to termination. CW5 Noe's quick reaction prevented serious injury to the crew and minimized damage to the aircraft.

■ *CW2 Russell L. Haslam*

Aviation Brigade, 25th Infantry Division (Light)
Wheeler Army Airfield, HI

During an NVG flight with zero illumination, CW2 Haslam, who was in the front seat of an AH-1F, noted decreases in both engine and rotor rpm. Light and audio warnings activated at 94 percent. At 91 percent N2 and rotor, CW2 Haslam entered an autorotation and immediately requested and received a continuous callout of engine and rotor rpm from the IP in the back seat. Once established in steady state autorotation, engine N2 rpm recovered to 97 percent. To compensate for the zero-illumination condition, CW2 Haslam requested that both the IR and white searchlights be turned on to assist in locating a suitable landing area. During the deceleration phase of the autorotation, he saw power lines in the flight path and maneuvered the aircraft to a safe landing in a recently plowed sugarcane field.

■ *CW3 Richard S. Handlon*

2nd Battalion,
101st Aviation Regiment
Fort Campbell, KY

The mission was to conduct mission task training and evaluation in the AH-64A. CW3 Handlon, the IP, was in the front seat using the TADS FLIR, and the PI was flying the aircraft using the PNVS.

They had done several high- and low-g maneuvers, including diving flight, without any problems when the PI conducted a high recon to initiate an approach into a confined area. As he began the approach, he felt the aircraft shudder as if it were landing in a tailwind condition. He announced "go-around" and began to execute the maneuver to approach and land from the opposite direction.

At about 140 feet agl and 45 knots on the second approach, the PI felt a high-frequency vibration in the pedals. The pedals began uncommanded fore and aft movements of approximately 3 inches at about 60 cycles per minute. When the aircraft began yawing left and right, CW3 Handlon took the controls. Five seconds later, the aircraft began an uncommanded right spin.

CW3 Handlon immediately reduced collective pitch to attempt an autorotative landing. He activated the chop collar to stop the right spin and execute a controlled forced landing into dense 50-foot-tall trees. The spin slowed as the aircraft descended into the trees, and he increased collective in an attempt to keep the aircraft level. The tail section separated on contact with the trees, and the aircraft hit the ground in a slightly nose-down, level attitude.

The aircraft was destroyed and both crewmembers suffered serious injuries, but CW3 Handlon's actions prevented what surely could have been fatal injuries to both himself and the other pilot.

Auxiliary fuel tank operations

The extended range fuel system (ERFS) was developed for self-deployment; it was never intended for daily operations. However, the increased mission capability it provides has encouraged commanders to use the ERFS for daily operational missions.

Use of the ERFS as daily mission equipment carries an increased risk for flight crews. The ERFS operations outlined in the Interim Statement of Airworthiness Qualification (ISAQ) for the AH-64 are not comprehensive enough for daily use of the system. The UH-60 operator and maintenance manuals contain all relevant information, but they should be reviewed closely, particularly before operations with ERFS containing fuel. In addition, such operations should involve only mission-essential personnel.

The ERFS should not be used as a convenience item to avoid mission delays for day-to-day operations. The ERFS should be used only for METL-based training or operations requiring extended mission legs when fuel is not available. Further, missions using ERFS tanks containing fuel should be identified as moderate or high risk.

Risk-assessment factors

Aviation commanders at all levels should consider the following before approving flight operations requiring ERFS containing fuel.

- Lack of crashworthiness resulting in increased risk of postcrash fire and limited ballistic-tolerant capabilities of the ERFS tank.
- Degraded aircraft performance resulting from increased gross weight, center of gravity shifts both laterally and longitudinally, and reduced aircraft maneuverability.
- Configuration/installation procedures, including fuel samples for the ERFS, refueling and defueling procedures, preflight considerations for ERFS, and maintenance procedures.

Safety considerations

The U.S. Army Aviation Technical Test Center conducted a limited airworthiness and flight characteristics study of the AH-64A equipped with a single 230-gallon ERFS tank and found the following:

- During ground taxi, the rotor tip path plane can dip as low as 4 feet above the ground. All ground personnel should be briefed whenever conducting ERFS operations.
- Downslope over-rotation can occur when landing with the ERFS either upslope or downslope; however, it is especially pronounced when landing with the ERFS downslope. Whenever possible, the AH-64A should be landed with the ERFS upslope.
- The ERFS should be mounted on the right side of the AH-64A, as this has the least impact on aircraft flight characteristics.
- The AH-64A parking brake had to be manually held on all slope angles of more than 5 degrees. Aircrews should ensure that the aircraft is securely chocked before conducting shutdown.
- The CCU 44/B impulse cartridge for the external stores jettison system exhibited a 12-percent failure rate (3 failures in 25 attempts). All cartridges were within the authorized shelf life.

Flight briefings

All aircrew briefings should include the following items:

- ERFS fuel-transfer operations.
- Single-engine considerations with fuel in ERFS.
- Effects of auxiliary-fuel-tank location on egress procedures.
- Weapons employment considerations with or without modification work orders (MWOs) and engineering change proposals (ECPs) completed.

Operator and maintenance manuals

The AH-64 ISAQ and UH-60 and AH-64 operators and maintenance manuals must be thoroughly understood and complied with. Specifically—

- Normal load factors in excess of 2 G's are not authorized with ERFS tanks containing fuel. High-G maneuvers increase aircraft gross weight and power required, thereby decreasing the power-available margin.
- Maneuvering with only one tank installed requires caution. Asymmetrical loading due to external-fuel-tank installation can result in increased roll rates and slower recovery time.
- In order for the AH-64 to obtain a single auxiliary tank empty indication, a jumper wire must be installed on the pylon of the opposite side of the aircraft from where the auxiliary tank is installed.
- Jettison of fuel tanks is not authorized except in an emergency, and then only from airspeeds less than 100 KIAS for the AH-64 or in accordance with the UH-60 operators manual.
- AH-64 external fuel transfer is not authorized during internal fuel transfer or when operating below minimum single-engine airspeed.
- Fuel consumption checks will be completed before auxiliary fuel is transferred to the main tanks.
- Auxiliary fuel tanks will be visually inspected when pressurized to ensure there are no fuel leaks. If any leaking is observed, fuel transfer will cease.

—adapted from a letter from MG Daniel J. Petrosky, CG, USAAVNC and Fort Rucker, to aviation brigade, division, and regimental commanders

RISK MANAGEMENT LESSONS LEARNED

WAR STORIES

On saying what you mean

After completing an uneventful first leg of a VIP support mission, we were on final approach in a UH-60A into Yokota AFB to pick up our passenger for the return trip home. My copilot was on the controls as I instructed: "Give me a gradual roll-on to the parallel taxiway. When we touch down, I'll crank the 'P' [APU] and unlock your tail wheel."

On final, I noticed his airspeed was a little excessive; however, I trusted him to slow down at a safe point. When it became apparent that he did not intend to meet my required comfort zone for deceleration, I made mention of his high rate of speed. This didn't seem to faze my copilot. I again instructed him to slow down a little and prepare for landing, and he acknowledged my request. However, he still did not slow to my comfort zone.

We touched down at approximately 30 KIAS. I allowed this to continue because there were no obstacles on the taxiway. After completing normal after-landing tasks and positioning the aircraft for passenger pickup, I asked why we had touched down at such a high rate of speed. His response was a little more than I bargained for.

He reminded me that during our thorough pre-mission crew briefing, I had told everyone to "communicate positively and be explicit; say what you mean, and mean what you say."

On final, I had told my copilot to give me "a gradual roll-on landing." Now, Task 1029 in TC 1-212 specifies in standard #4, "Perform a smooth, controlled touchdown above ETL but below 60 knots groundspeed aligned with the landing direction ±5 degrees."

I had asked for a roll-on landing, and my very capable copilot did exactly what I said.

But, I really didn't mean what I said....

—CW4 Wayne Denmark, 78th Avn Bn (Prov), Camp Zama, Japan, denmarkw.78avn@zama-emh2.Army.mil

There I was at JRTC...

. . . in a UH-1H at 0100 hours on a combat search and rescue (CSAR) mission under NVG conditions. The night was clear, but it had been raining all day, and there was a small amount of ground fog developing. I was the unit's ASO as well as an NVG SP. I was in the left seat, and the PC for the flight was in the right seat; he was also an NVG SP. We had flown together for several years and trusted each other completely. In addition, we had been at JRTC for a week and had completed several CSAR missions.

We had thoroughly briefed the mission and possible scenarios that might occur. At about 300 feet agl over 75-foot pine trees, the low rotor rpm audio and light activated. I was on the controls and felt no indications of a possible engine malfunction, but I asked how the rpm was as I began a power-on desent to a small field in front of a field hospital to our front.

The crew chiefs in the back started calling the aircraft clear, as they were unaware that the audio had activated. They thought we were starting an approach at our pickup point. The PC was unable to call out that the rpm was okay over the crew chiefs, and I was unable to check the rpm as I was concentrated outside. As I still had no other indications of an engine malfunction, I continued the power-on approach past the 75-foot pine trees. At about 200 feet agl, the PC said the rpm looked okay, and I landed in the clearing and completed a normal shutdown.

Of course, the adrenaline was pumping as we exited the aircraft, and we were glad to be on the ground. We were glad that we had not overreacted and that we had covered possible engine malfunctions in our briefing. We were also glad we had landed safely without damaging anything.

Unfortunately, the observer-controller that made the location said that we had landed on a minefield and everyone had been killed.

Oh, well. We hadn't briefed that.

—CW3 John W. Hickman, Texas ARNG, San Antonio, TX, DSN 471-2919 (210-661-3631)

It ain't necessarily so

We learned a lot about hazardous attitudes in the Army's Aircrew Coordination Course. However, I discovered one on my own that we hadn't discussed in the course. It's subtly akin to the "Halo Effect," and it's potentially lethal. I'm sure the day will come when some high-speed clinical psychologist will give it a suitably psychobabble name, but for now I'll just call it "Tuttle's Theorem." It goes like this:

1. I belong to this unit, and I fly around this area a lot.

2. Aviator X also belongs to this unit, and he flies around this area a lot.

3. I know Y from having flown around this area a lot.

4. Hence, whence, thus, ergo, QED: Because I know Y, Aviator X must also know Y.

And now for Tuttle's Corollary: *It ain't necessarily so.*

As a full-time support aviator in the Jersey Guard, I operate in an area that includes Air Force bases, Coast Guard helipads, and a couple of Naval Air Warfare Centers in addition to the usual assortment of Army, National Guard, and civil hover-holes. I'm used to landing in areas with ground guides who maneuver aircraft for a living, and I'm comfortable with my knowledge of standard hand and arm signals. Since a goodly portion of my fellow aviators on the part-time side are either professional pilots or otherwise involved in civil aviation in the same area, we have a common mental aeronautical library.

So much for the bait. Now, the trap.

Our flight of four AH-1Fs had just arrived at our scheduled refueling stop on the way to Annual Training. We occupied most of the transient parking area, but a second flight of four was only a half-hour behind us. The AMC came up with a parking plan that wouldn't shut down the FBO, mesh rotor blades, or invert any of the starched wings having squatters' rights to the ramp. The idea was for us to ground guide the second flight between the FBO's hangar and the huddled masses of civilian aircraft. After getting the FBO's approval, the AMC phoned The Plan to the control tower.

We took our positions and eagerly awaited our opportunity to show the rapidly gathering crowd of gawkers "how it's done." I was the inside man—right in front of the FBO's office.

The Plan came together. Tower told Second Flight what to expect, and handed Lead over to our ground-guiding expertise. Lead approached our "outside man" and performed a flawless left pedal turn in response to his signals. Lead then proceeded—at an appropriately stately pace—past the two "passers" to yours truly—and stopped about one Cobra-length away from where he would have to park to make The Plan work.

You can see it coming, can't you?

I signaled Lead to "slide right." The slightly puzzled look I got from the front-seater should have raised the hair on the back of my neck, but I continued to give him the "slide right" signal (probably with the mindset that if you repeat yourself enough times, even a raccoon will finally understand you).

I was still trying ESP on Lead when he proved the fallacy of Tuttle's Theorem and validated Tuttle's Corollary. Instead of sliding right, he made a right pedal turn. A three-sixty. Faster than you can say "Bell."

One of my fellow aviators later said that the tail rotor passed about 3 feet over my head (" 'Course that was *after* you ducked!") and another said that he had never realized a human being could sprint while in a full crouch. Since Lead had landed by now (yep—still in the wrong spot), I did what I should have done when I spotted the "Huh?" look on the front-seater's face. I opened his canopy door and told him where he was supposed to park and how I was going to guide him there.

I had encountered a "slide right/left" every time I'd refueled at a military base, but the aviators in Lead had either never seen the signal or had forgotten what it meant. After discussing the situation, they'd decided I wanted them to pedal turn. So that's what they'd done.

Afterwards, both my buddies in Lead told me that, while they had been confused about "slide right," they had no trouble interpreting the double hand-signal I gave them from the safety of the FBO's doorway immediately following their pirouette. And yes, I did apologize to the FBO's secretary for almost becoming a wet red swath across the windows of her office. But I suspect that her eyes will still be about the size of saucers for quite some time.

—CW4 William S. Tuttle, New Jersey ARNG, DSN 445-9261 (609-530-4251)

A word to the wise. . .

It's a good idea to periodically review standard hand and arm signals just to make sure everybody's speaking the same language. The standard signals are illustrated in appendix A, FM 1-104: Tactics, Techniques, and Procedures for Forward Arming and Refueling Points.

ANVIS maintenance

How do we start or maintain a good aviator's night vision imaging system (ANVIS) maintenance program?

Unit-level maintenance is the first and most critical level of a good ANVIS maintenance program. It is the foundation of the maintenance system and requires continuous emphasis by all commanders and supervisors. Commanders are responsible for providing resources, assigning responsibility, and training their soldiers to achieve the standards defined in paragraph 3-1a of AR 750-1.

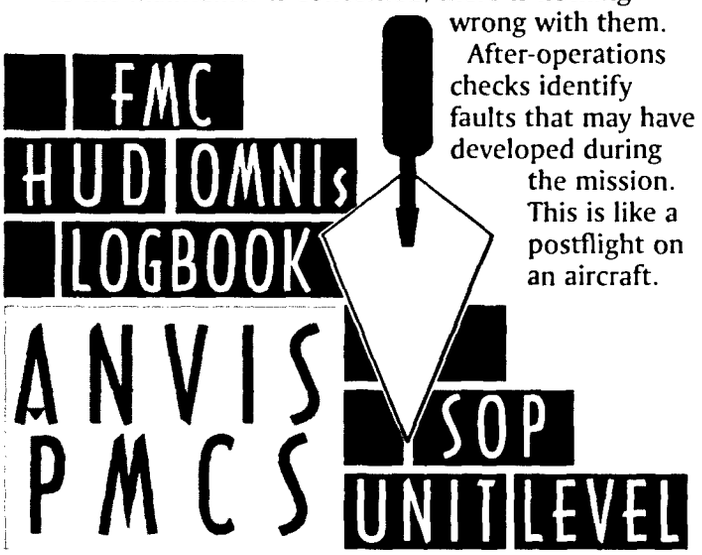
The cornerstone of an ANVIS maintenance program is the preventive maintenance checks and services (PMCS) performed by the operator using the -10 operators manual. That means every pilot, copilot, crew chief, gunner, and flight engineer using the ANVIS must be properly trained on how to inspect the ANVIS.

The before- and during-operations checks concentrate on assuring equipment is fully mission capable (FMC). That means ready to go to war and perform as advertised.

Faults detected during the before-operations checks that make the equipment not FMC or violate a safety directive must be corrected before the mission. This means if they are broken, do not use them; get another set.

Faults detected during the mission affecting FMC status must be considered during the mission. This means if you cannot fix the problem, modify or cancel the mission.

Faults detected before or during the mission not affecting FMC status may be corrected, if time permits, or recorded and reported for correction after the mission. But remember, if you do not document what is wrong with the goggles, then as far as the maintainer is concerned, there is nothing wrong with them.



After-operations checks identify faults that may have developed during the mission. This is like a postflight on an aircraft.

The unit-level maintainer is the next stone in this program. The maintainer is required to be trained in ANVIS maintenance, and this training must be documented by the qualified trainer. The maintainer must then be designated in writing by the commander as the unit ANVIS maintainer.

The unit ANVIS maintainer is required to maintain ANVIS in accordance with all technical manuals and written directives. This information could be compiled into a standard notebook binder. That binder should contain the following information:

- Maintainer's documentation of ANVIS maintenance training.
- Maintainer's designation by unit or activity commander.
- Maintainer's technical-inspector orders (to clear red-X and circle-red-X status and perform technical inspection on ANVIS and related equipment).
- Designated personnel authorized to perform distortion checks.
- Copy of unit NVG maintenance SOP.
- Copies of current NVG messages.
  - 101430Z Apr 97, ATCOM, GEN-97-ASAM-04
  - 191537Z Feb 97, USAAVNC
  - 130229Z Sep 96, ATCOM, GEN-MIM-96-05
  - 032330Z Jan 91, USAAVNC
- Listing of all rescinded NVG messages.
- Copy of SOP and Airspace NVG Checklist dated 15 Apr 97.
- Copy of ANVIS Maintenance Checklist dated 15 Apr 97.
- Current Technical Bulletins.
  - TB 1-1500-346-20, 26 Jan 96
  - TB 1-1500-348-30, 29 Dec 95
  - TB 1-1500-350-30, 26 Feb 96
- Copy of NVDB-UGM-1: *ANVIS Forms and Records Updated Guidance Manual*, 15 Apr 97.
- Required publications.
  - DA Pam 738-751
  - TM 11-5855-263-10
  - TM 11-5855-263-23&P
  - TM 11-5855-299-12&P

All this information is available through the Night Vision Devices Branch at Fort Rucker, DSN 558-9545 (334-255-9545).

Commanders are responsible to ensure that every set of ANVIS has a logbook and that the logbook is maintained in accordance with DA Pam 738-751 and all technical bulletins, technical manuals, and written directives.

The last stone of this maintenance program is aviation intermediate maintenance (AVIM). They provide support for the unit maintenance program in the areas of troubleshooting, repairs, and 180-day inspections.

—SFC Ken Wheatley, Night Vision Devices Branch, USAAVNC, DSN 558-9545 (334-255-9545)

Shortfax
Keeping you up to date

Attention AH-1 maintainers

Phase 2 of the AH-1 Aviation Maintenance Officer Course (AMOC) is now being conducted at the Western Army National Guard Aviation Training Site. If you have AH-1 related questions, contact CW4 Dale Whitmore, CW4 Gary Gebhart, or CW3 Jack Johnston at DSN 853-4573/4623 (520-682-4573/4623). The mailing address is Commander, Western AATS, Bldg L45-500, Silverbell AHP, Marana, AZ 85653-9598. The e-mail address is whitmored, gebhartc, or johnstonj@azng-mail.army.mil.

Hello? Hello?

With the automation of the phone system (no operators) here at Fort Rucker, we at the Safety Center are having a hard time returning calls to DSN numbers overseas. So if you need for someone here to call you, please leave a commercial number if possible. E-mail is also a good option.

—CW5 Bill Ramsey, Aviation Section, USASC, DSN 558-2785 (334-255-2785), ramseyw@safety-emh1.army.mil

ASE/EW course available

The proper use of aircraft survivability equipment (ASE) can greatly increase the survivability of aircraft on the modern-day battlefield. A 2-week course designed to train officers in all aspects of ASE employment procedures is taught at Fort Rucker. The ASE/Electronic Warfare Officer's Course (ASE/EWOC) is open to Army aviators who—

- Possess a SECRET security clearance.
- Have completed one utilization tour.
- Are ASET II proficient.
- Are identified to be placed in a unit EWO position.

Warrant officers who complete the course will be qualified for an additional skill identifier of H3. The course is also a prerequisite for the tactical operations officer track for warrant officers.

Twelve courses are scheduled for fiscal year 1998.

Class	Course dates
98-01	10-31 Oct 97
98-02	1-12 Dec 97
98-03	5-16 Jan 98
98-04	2-13 Feb 98
98-05	2-13 Mar 98
98-06	6-17 Apr 98
98-07	27 Apr-8 May 98
98-08	11-22 May 98
98-09	1-12 Jun 98
98-10	12-24 Jul 98
98-11	3-14 Aug 98
98-12	14-25 Sep 98

Officers wishing to attend the course should submit DA Form 4187 through their commander.

POCs: CW2(P) Jeff Yltalo or Mr. Robert Wynkoop, ASE/EWOC, Fort Rucker, DSN 558-2023 (334-255-2023)

Static-discharge danger

Soldiers conducting static-sensitive operations need to be aware of possible static discharge from the extended cold weather clothing system (ECWCS). The parka (NSN 8415-01-228-1306 series) and trousers (NSN 8415-01-228-1336 series) are made of a synthetic laminated cloth commonly known as Gore-Tex™. Synthetic fabrics generally develop greater static charges and maintain these charges for a longer period than natural fibers such as cotton or wool.

Electrostatic discharge (ESD) during operations such as ammunition or missile handling, refueling, and maintenance or electronics may present an immediate operator hazard or a delayed adverse effect upon systems.

Units should identify operations where ESD can be a hazard and implement controls to reduce or eliminate these hazards. References that specify established procedures include, but are not limited to, the following:

- FM 10-68: *Aircraft Refueling*
- FM 10-69: *Petroleum Supply Point Equipment and Operations*
- FM 10-20: *Organizational Maintenance of Military Petroleum Pipelines, Tanks, and Related Equipment*
- FM 9-38: *Conventional Ammo Unit Operations*

Fortunately, no incidents have been attributed to ESD from field clothing, but the possibility is there. Units should ensure that controls such as grounding, bonding, and ventilation of fuel/air mixtures are part of their standing operating procedures for static-sensitive operations.

Technical POC is Mr. Neil E. Smedstadt, Army Natick Research, Development, and Engineering Center, DSN 256-4032 (508-233-4032). Safety POC is Mr. Paul G. Angelis, Army Soldier Systems Command, DSN 256-5208 (508-233-5208).

—adapted from *Explosives Safety Bulletin*

Changes at ATCOM

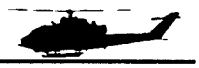
The aviation mission of the Aviation and Troop Command (ATCOM) has merged with the Missile Command to form the U.S. Army Aviation and Missile Command (AMCOM), which is located at Redstone Arsenal, AL. Please note that only the aviation mission of ATCOM was merged to form AMCOM.

CDRAMCOM message 220409Z Sep 97 lists the names, phone numbers, and e-mail addresses of points of contact in the Transportation Branch of the new command. CW5 Bill Ramsey at the Army Safety Center will also be glad to help you get through to the right folks at AMCOM. You can call him at DSN 558-2785 (334-255-2785) or e-mail him at ramseyw@safety-emh1.army.mil.

Accident briefs

Information based on *preliminary* reports of aircraft accidents

AH1



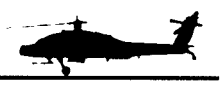
Class E

F series

■ Engine oil pressure light came on during low-level flight. Aircraft landed without incident, and maintenance replaced engine oil pressure switch.

■ Forward fuel boost pump light came on during cruise flight, followed by aft fuel boost pump light. During descent, segment lights extinguished, and aircraft landed without incident. Inspection revealed faulty one-way check valve in by-pass manifold and forward boost pump. Bypass manifold and forward boost pump were replaced.

AH64



Class C

A series

■ Several caution lights came on in cruise flight, after which smoke entered cockpit. Crew executed manual emergency actions and landed without further incident. Subsequent maintenance inspection revealed extensive damage to electrical system. Investigation is in progress.

Class E

A series

■ Crew made precautionary landing after smelling smoke and feeling unusual airframe vibration during aerial gunnery at night. Inspection revealed No. 1 generator was bad and had been smoking. Generator was replaced.

■ During night gunnery training, aircraft experienced TADS and PNVS failure. PC established unaided flight and returned to base. Inspection revealed bad connector plug, which was replaced.

■ During before-takeoff check, primary hydraulic pressure was noted at 600 psi, and aircraft was shut down. Maintenance replaced primary hydraulic pressure transducer.

■ Oil bypass utility hydraulic caution light came on during taxi. Maintenance replaced utility hydraulic pressure filter.

■ Transmission chip caution light came on during hover taxi for takeoff, and flight was terminated. Inspection revealed broken connection at environmental splice in chip plug wire.

CH47

Class D

D series

■ During track and balance in cruise flight, No. 2 flight control hydraulic and No. 2 AFCS-off caution lights illuminated on master caution panel and No. 2 pump fault light illuminated on maintenance panel. Caused by sheared shaft on pump.

Class E

D series

■ After load was released during slingload training, center cargo hook required manual reset and aircraft was repositioned to land. During descent, aircraft struck another training block immersed in high vegetation. Aircraft was picked back up and landed safely.

■ During engine runup, crew noticed that forward rotor had unusual lateral oscillation that stopped when rotor speed reached 50 percent of rated rpm. This was attributed to the first start of the day and cool outside temperature. After runup and hover checks, aircraft was shut down due to weather. On postflight, crew discovered excessive wear on bushing assembly on outboard bearing rod end on shock absorber located on yellow blade/forward rotor. When retaining bolt was removed, pieces of bushing assembly fell out. A new shock absorber was installed and aircraft returned to flight.

■ Crew heard high-pitched whine coming from forward transmission area during flight. About 5 seconds later, master caution light came on with a No. 1 flight control hydraulic caution capsule and No. 1 AFCS. Aircraft landed and shut down in field, where complete loss of system pressure as well as fluid loss was experienced. Maintenance replaced pitch ILCA O-rings and transfer tube.

OH58

Class B

A series

■ Aircraft rolled over upon liftoff to a hover. Small postcrash fire was extinguished. There were no injuries. Incident is under investigation.

C series

■ Aircraft had departed refueling point and was en route to parking pad with crew under NVGs. While at forward 3- to 5-foot hover, IP experienced failure of his intercom system and instructed student to take controls. Confusion ensued as to who had the controls, and nose of aircraft rose and tail rotor hit ground. Main rotor blades also hit ground and entered cockpit. Student sustained laceration above right eye.

D(I) series

■ Crew heard loud bang in cruise flight, followed by engine failure. Crew executed emergency autorotation, and aircraft landed hard. Tail boom separated, and main rotor blades and tail rotor blades and gearbox were damaged. There were no injuries.

Class C

C series

■ While crossing a ridge line, aircraft experienced engine overtorque to 110 percent. During subsequent precautionary landing on the ridge, aircraft tail rotor contacted ground. Tail rotor assembly and gearbox separated. Aircraft was shut down without further incident.

Class E

C series

■ Tail rotor began oscillating in cruise flight at 70 knots. Shortly thereafter, low rotor rpm light and audio activated. Midway through autorotation, engine-out light activated. Aircraft landed without damage. Cause not reported.

D(I) series

■ During cruise at 700 feet agl, high engine oil pressure message displayed with corresponding digital display. PC terminated mission and returned to airfield. On short final, low transmission pressure message displayed with corresponding digital display. Inspection revealed main seal on accessory gearbox was disintegrating, causing damage to freewheeling unit that allowed transmission oil to flow into engine.

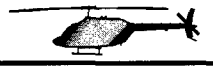
■ IP noted lateral cyclic binding during hover taxi to parking. Inspection revealed binding or racheting was occurring about

an inch from cyclic center. Maintenance adjusted cyclic servo actuator upper bolt and servo valve bolt.

■ During cruise flight at 600 feet agl, low oil pressure transmission warning message illuminated without corresponding instrument readings. PC declared emergency and landed. Caused by loose wire on transmission oil psi sending unit.

■ Transmission oil psi low caution illuminated three times while MPD indicated 55 to 60 psi, well within normal. Crew executed precautionary landing; maintenance replaced transmission oil psi switch.

TH67



Class D

A series

■ During simulated maximum performance takeoff at 15 feet agl, rpm warning light and audio activated. Student on controls immediately retarded throttle and entered autorotation. Aircraft sustained damage to isolation mount, spike striker plate, and transmission cowling on termination of autorotation.

UH60

Class A

L series

■ Chalk 3 in flight of three experienced brownout conditions while on approach to pickup zone during air assault training. Aircraft landed hard and rolled onto its left side. All main rotor blades, main transmission, drive train, tail rotor blades, and gearbox were destroyed. All occupants were treated for minor injuries.

Class C

L series

■ Crew smelled smoke while aircraft was positioned over refuel point but could not identify source. PC elected to reposition aircraft to taxiway for shutdown, during which crew noted smoke coming from No. 1 engine. Upon opening engine nacelle after cooling, it was noted that the V-clamp affixing the engine exhaust to the engine had separated. This allowed exhaust gases into cowling area, resulting in damage to several components. Incident is under investigation.

A series

■ Aircraft experienced brownout while at a hover during M-60 door gunnery training. Crew initiated a climb up and out of the dust cloud and over a stand of trees. As aircraft was subsequently being landed to clear and rod weapons, crew heard loud noise. CE reported that aircraft was still in the trees. PI increased collective, at which point PC took controls and landed without further incident. Initial inspection revealed all four main rotor blades sustained trailing-edge damage. One main rotor blade sustained further damage, and possible spindle damage is suspected.

Class E

A series

■ No. 1 engine failed during low power setting at termination of training flight, and normal restart was accomplished. No. 1 engine failed again during taxi to parking. Cause not reported.

■ Aircraft was landed on bush during NVG APART evaluation. Two days later, damage was found to searchlight mount and sheet metal surrounding searchlight.

■ No. 2 engine flamed out while aircraft was operating with both engines at flight idle and parking brake engaged. Maintenance replaced hydromechanical unit.

C12

Class C

C series

■ Upon touchdown from short-field landing, right main landing gear collapsed, allowing propeller to contact ground. Aircraft traveled 1600 feet down runway before stopping. All three blades of right propeller were destroyed, right engine experienced sudden stoppage, and inboard and outboard flaps and right aileron were damaged.

R series

■ Lightning struck aircraft, damaging left wing tip and right horizontal stabilizer.

Class E

C series

■ During close-traffic-pattern work, flaps traveled from full up to 40 percent during takeoff and again on downwind with flap handle in full-up position. Maintenance adjusted contacts in flap-handle striker plate and cam assemblies.

■ During taxi to active runway, brakes would not stop aircraft. Aircraft was stopped using reverse thrust. After shutdown, aircraft was towed back to maintenance. Caused by failure of hydraulic cylinders.

F series

■ On rotation and initial climb, pilot's airspeed indicator went to 60 KIAS while copilot's indicator read 125. IP in rear seat assumed control and executed closed traffic pattern and landing. Maintenance found that static airline coupling was not fully secured and had separated during rotation.

G series

■ During initial climb after takeoff, landing gear handle warning light came on even though gear appeared to have retracted normally. As aircraft passed through 1000 feet, cabin door warning light also came on. Crew returned to airport and landed without incident. Inspection found that gear and door limit switches were out of adjustment.

■ Fuel control apparently failed on No. 1 engine, and engine N1 would not accelerate within parameters. While performing MOC runup for maintenance test flight, maintenance determined that oil-to-fuel heat exchanger was faulty.

T34

Class E

C series

■ As aircraft was accelerated to fast cruise after conducting slow flight maneuvers, pilot noted very strong smell of fuel. Following NATOPS procedures, pilot asked flight operations to coordinate look from another aircraft to determine if fuel was leaking. Visual look found no evidence of leak, and fuel gauges did not show loss of fuel, so pilot flew back to airfield and completed normal approach and landing. Maintenance cleaned fuel check valve on vent system.

■ Fire warning light came on after engine start. Crew shut down engine and exited aircraft. Maintenance inspection found no evidence of fire. Warning system was checked and connectors cleaned of moisture.

For more information on selected accident briefs, call DSN 558-2785 (334-255-2785).

Aviation messages

Recap of selected aviation safety messages

Aviation safety-action messages

CH-47-97-ASAM-10, 291548Z Sep 97, maintenance mandatory.

The AN/AVS-7 heads-up display provides operational symbology to pilots during ANVIS operations by overlaying the symbology on the image provided by the ANVIS. It was recently discovered that a component part power supply was changed by the vendor without approval, causing the AN/AVS-7 to be susceptible to some power line transients. The system will reset when certain power spikes are received, causing the display to blank for a 10- to 15-second interval while completing the power-up sequence. After that, the system will return to its normal start-up condition of full dim on the display and display page 1N.

The purpose of this message is to require a one-time inspection of all AN/AVS-7 systems to verify installation of the correct power supply component and to restrict flight operations with the AN/AVS-7 if an incorrect power supply component is installed.

AMCOM contact: Mr. Robert Brock, DSN 788-8632 (205-842-8632), brock-rd@redstone.army.mil

UH-1-97-ASAM-06, 292908Z Sep 97, maintenance mandatory.

ATCOM has received field reports citing failure of the self-sealing breakaway coupling connecting the oil line from the engine scavenge pump to the ODDS lubriclone filter. The pins in the connector are designed to shear in a crash sequence, but they are wearing away prematurely, resulting in pin failure. The internal valve closes and shuts off the oil flow. Pressure in the oil line increases, and the hose has failed under certain circumstances. Most of the wear on the pins can be attributed to normal aircraft vibration and side loading caused by the slight misalignment of the 90-degree coupling half at the lubriclone filter. Periodic inspection of these couplings is needed to prevent in-flight failure.

The purpose of this message is to require an inspection of the couplings, establish a recurring inspection to prevent future failures, and provide a temporary solution to the current supply shortage of 90-degree coupling halves.

AMCOM contact: Mr. Robert Brock, DSN 788-8632 (205-842-8632), brock-rd@redstone.army.mil

UH-60-97-ASAM-18, 082032Z Sep 97, maintenance mandatory.

Safety-of-flight message UH-60-97-1 was issued in December 1996 to remove certain reworked main rotor swashplate assemblies from use. To date, not all of the assemblies identified in this message have been turned in.

The purpose of this message is to require a visual check of serial numbers to identify suspect swashplate assemblies and to remove them from service.

AMCOM contact: Mr. Dave Scott, DSN 897-2068 (205-313-2068), scott-dc@redstone.army.mil

UH-60-97-ASAM-19, 291548Z Sep 97, maintenance mandatory.

See CH-47-ASAM-10 above.

UH-60-98-ASAM-1, 012125Z Oct 97, maintenance mandatory.

UH-60-97-ASAM-09 restricted main rotor shaft extensions (P/N 70351-08186-043) manufactured by the Purdy Corporation (cage code 15152) and Fenn Manufacturing Company (cage code 82001) to 2100 hours of service.

The purpose of this message is to eliminate this restriction and revise the service life of subject components to the original 14,000 hours.

AMCOM contact: Mr. Dave Scott, DSN 897-2068 (205-313-2068), scott-dc@redstone.army.mil

YOU CAN'T SOAR LIKE AN EAGLE . . . IF YOU THINK LIKE A TURKEY.

—HAPPY AND SAFE THANKSGIVING WISHES

IN THIS ISSUE

WS • War Stories, CC • Crew Comms, SF • Shortfax

Class A Accidents

through September

		Class A Flight Accidents		Army Military Fatalities	
		96	97	96	97
1ST QTR	October	1	0	0	0
	November	0	0	0	0
	December	0	1	0	0
2D QTR	January	1	2	0	2*
	February	0	0	0	0
	March	2	2	7	1
3D QTR	April	1	2	3	2
	May	0	1	0	1
	June	1	3	6	0**
4TH QTR	July	0	1	0	8
	August	1	0	0	0
	September	1	0	0	0
	TOTAL	8	12	16	14

*Excludes 1 USAF pilot trainee fatality
**Excludes 2 non-DOD fatalities

U.S. ARMY SAFETY CENTER

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